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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/675,937	09/30/2003	Evon Llewellyn Crooks	030627/267415	2368
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EXAMINER FELTON, MICHAEL J				
ART UNIT		PAPER NUMBER		
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/675,937

Applicant(s)

CROOKS ET AL.

Examiner

MICHAEL J. FELTON

Art Unit

1791

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 July 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25, 27-38 and 40-44 is/are pending in the application.
- 4a) Of the above claim(s) 22-25 and 29-37 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21, 27, 28, 38 and 40-43 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 7/1/2009.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-21, 27, 28, 38, and 40-44 have been considered but are moot in view of the new ground(s) of rejection. The arguments concern claim amendments that are addressed in the rejection below.

Claim Rejections - 35 USC § 103

2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).
4. Claims **1-17, 19-21, 27, 28, 38, and 40-44** are rejected under 35 U.S.C. 103(a) as being unpatentable over Jupe et al. (WO 02/060745A1 or US 2002/0166563) in view of Chapman (RJR Memorandum, 1982), Schreus et al. (US 2,815,760), and applicant's admitted prior art.

5. Regarding claims **1, 6, 7, 16, 17, 19, 38, 42**, Jupe et al. disclose a multi-segment cigarette filter with a cellulose acetate fibrous tow filter segment proximal to the tobacco end (figure 1, element 18) and a similar fibrous tow segment distal to the tobacco (i.e. mouth end, figure 1, element 22). The two fibrous segments are spaced apart from one another with a cavity containing a granular activated carbon adsorbent. The mouth end filter segment has a reported 10-15% particle removal efficiency while the tobacco end filter segment has a reported 10-40% efficiency (table II). The tobacco end filter has a higher particle removal efficiency than the mouth end filter as shown in table II.

6. Although Jupe et al. disclose a general multi-component structure with cellulose acetate filter segments with different efficiencies, a cavity, and a granular carbon adsorbent, Jupe et al. do not expressly disclose the use of plasticized cellulose acetate, a cavity containing an adsorbent, and porous paper or fibrous tow semi-permeable barrier, an ion exchange resin, or that the different filter efficiencies are due to different filament weight per unit length.

7. Regarding plasticized cellulose acetate, it is notoriously well known in the art that cellulose acetate cigarette filter segments are plasticized, with the predominate plasticizing agent being triacetin. Jupe et al. allude to the plasticizing of cellulose acetate and indicate that filter element 50, may be flavored by adding a flavorant to the plasticizer to be used (page 26, 1st paragraph). Although element 50 is not the cellulose acetate filter segments with different particulate removal efficiencies, it would have been obvious to one of ordinary skill in the art at the time of invention that all the cellulose acetate tow segments of Jupe et al. are plasticized. Jupe et al. do not state elsewhere

Art Unit: 1791

that the cellulose acetate tow of element 50 is plasticized, it is assumed that one of ordinary skill would understand that it is plasticized and that an alternative way to flavor that segment is to add flavor to the plasticizer that is being applied by default to all cellulose acetate segments. Furthermore, in the instant specification, the applicant discloses that cigarette filters are typically made with, "cellulose acetate plasticized using triacetin" (paragraph 0002).

8. Regarding the different filter efficiencies being due to different the use of tows with different filament per unit lengths, which is not disclosed by Jupe et al., it would have been obvious to one of ordinary skill in the art at the time of invention that the primary way to alter particulate removal efficiency and resistance to draw would be to use fibers or tow with different denier filaments (weight per unit length). For example, Chapman discusses that the engineering term, pressure drop is also called draw, draft, or resistance to draw (the term used by Jupe et al.), and goes on to state that it is known that pressure drop, "decreases with decrease in denier and fiber cross-sectional area (fourth paragraph). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use different denier fibers (i.e. filaments with different weights per unit length) to construct the filter of different resistance to draw and particulate removal efficiency as disclosed by Jupe et al. Doing so is a well known method of creating different pressure drops and efficiencies in filter segments as shown by Chapman.

9. Regarding the structure of, and the materials used in, the cavity, it would have been obvious to one of skill in the art at the time of invention to use other materials than

those expressly disclosed by Jupe et al. For instance, Jupe et al. state that the components may be constructed of filter materials other than those specifically mentioned herein (page 27, 4th paragraph). Jupe et al. do not teach having multiple cavities that contain ion exchange materials in addition to activated carbon. However, Schreus et al. teach a multi cavity cigarette holder that contains 3 chambers, 2 of which contain ion exchange resins and one containing activated carbon. Each chamber separated by cotton tow (cotton wool) that would inherently provide a uniform, semi-porous, barrier between the regions (for instance regions A and B), (see example 2 and figure 7, elements 15-18). Schreus et al. also indicate that the filter segments could also be used directly within a cigarette (col. 4, 1-2). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to use the multi-chambered cavity of Schreus et al. in the cavity of Jupe et al. as doing so would further remove unwanted components from the cigarette smoke (using the ion exchange resin in addition to the activated carbon of Jupe et al.).

10. Regarding claim **2 and 3**, it would have been obvious to reverse the order of the absorbent and the ion exchange resins, since it has been held that mere reversal of the essential working parts of a device involves only routine skill in the art. *In re Einstein*, 8 USPQ 167.

11. In reference to claim **4**, Schreus et al. disclose that the ion exchange material has a grain size of 1.2 mm or 0.9 mm. It would have been obvious to one of ordinary skill that the material is granular (example 2).

Art Unit: 1791

12. Regarding claim **5**, Schreus et al. disclose basic organic anion exchange resins (col. 3, 45-66).

13. Regarding claims **8-11**, Jupe et al. disclose, as an example, that the multi-component filter may be 34 mm long, and have a tobacco end filter segment is preferably 6 mm long and a mouth end filter segment is preferably 8 mm long (page 11, 3rd paragraph).

14. Regarding claims **12-15**, the lengths of the chambers of Schreus et al. are not expressly disclosed. However, it would have been obvious to optimize the length of each filter component to produce a filter suitable for attachment to a cigarette, since it has been held that discovering the optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

15. Regarding claim **20**, Jupe et al. disclose using granular activated carbon with a mesh size from 10 to 70, or more preferably 20 to 50 (page 8, paragraph 3).

16. Regarding claim **21**, Schreus et al. disclose using cotton wool to separate materials in a cavity. However, it would have been obvious to use other types of tow, especially cellulose acetate which is common in the art and in the other references. Furthermore, Schreus et al. indicates prior use of "finely porous filter materials or cotton wool and the like". It would have been obvious that cellulose acetate and other tow materials could be used in place of cotton wool (i.e. cotton balls).

17. Regarding claims **27, 28, 40, and 41**, Jupe et al., as stated in the rejection of claim 1 above, disclose a mouth end filter with lower particulate removal efficiency than the tobacco end filter (table II). Elsewhere, Jupe et al. also disclose that the opposite

configuration may be used, with a higher particulate removal efficiency mouth end filter than the tobacco end filter (page 11, last paragraph-page 12). In the second embodiment, Jupe et al. disclose that the mouth end filter can be made of tow containing filaments with 3.0 dpf and the tobacco end filter can contain tow with 5.0 dpf.

18. First, it would have been obvious to use the high and low relative particulate removal efficiency filters made of different denier per filament (dpf) fibers in the mouth and tobacco end filters, as well as reverse the order as Jupe et al. disclose both relationships. In addition, there is no criticality or unexpected results relating to reversing the high and low relative efficiency filter segments as both are disclosed in the prior art and the instant application does not suggest unexpected results from one arrangement or the other.

19. Second, although Jupe et al. disclose 3.0 dpf and 5.0 dpf, it would have been obvious to one of ordinary skill in the art at the time of invention to change the dpf to achieve a desired particulate removal efficiency in a filter segment because it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. *In re Boesch*, 617 F.2d 272, 205 USPQ 215 (CCPA). It is well known that particulate removal efficiency is related to filter length and total denier, and not just dpf (as disclosed by Chapman). Therefore, it would have been obvious to use lower dpf filaments to make a longer filter segment that would still have the particulate removal efficiency of Jupe et al.

20. Regarding claims **43 and 44**, Jupe et al. disclose that it is well known in the art to locate ventilation holes in the adsorbent segment, at least 12 mm from the mouth end of

Art Unit: 1791

the filter. It would have been obvious to one of ordinary skill in the art at the time of invention to locate the ventilation holes in the tobacco side of the absorbent segment in order to place the ventilation holes as far away from the fingers as possible as the prior art is summarized by Jupe et al.

21. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jupe et al. (WO 02/060745A1), Chapman (RJR Memorandum, 1982), Schreus et al. (US 2,815,760), and applicant's admitted prior art as applied to claim 1 above, and further in view of the *Kirk-Othmer Encyclopedia of Chemical Technology*, John Wiley & Sons, Inc., 2001, vol. 14, page 12. The references used in the rejection of claim 1 do not expressly disclose that the ion exchange resin is in granular form. However, as described in the *Kirk-Othmer Encyclopedia of Chemical Technology*, ion-exchange resins are typically made in granular form. "With few exceptions, resins are supplied as small, round beads..."

22. It would have been obvious to one of ordinary skill in the art at the time of invention to use ion exchange resins in their granular form because they are typically produced in granular form.

23. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Jupe et al. (WO 02/060745A1), Chapman (RJR Memorandum, 1982), Schreus et al. (US 2,815,760), and applicant's admitted prior art as applied to claim 1 above, and further in view of Frund (US 5,714,126). The references used in claim 1 do not disclose the

Art Unit: 1791

activity of the activated carbon. However, Frund discloses using activated carbon to remove harmful gasses, with an activity of at least 95 Carbon Tetrachloride Activity (col. 2, line 6).

24. It would have been obvious to one of ordinary skill in the art at the time of invention to have used carbon with sufficient activity, as disclosed by Frund, to achieve removal of harmful gasses in the cigarette smoke.

Conclusion

25. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to **MICHAEL J. FELTON** whose telephone number is

Art Unit: 1791

(571)272-4805. The examiner can normally be reached on Monday to Friday, 7:30 AM to 4:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Phillip C. Tucker can be reached on 571-272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael J Felton/
Examiner, Art Unit 1791

/Philip C Tucker/
Supervisory Patent Examiner, Art Unit 1791